The remarkable morphological and anatomical diversity of African and Madagascar genera of Apiaceae, as revealed by several ongoing studies, is discussed and illustrated. Recent revisions and molecular systematic studies have shown that these genera are of critical importance in understanding the early evolution of the subfamilies Saniculoideae and Apioideae. An overview is presented of (1) interesting new morphological, anatomical and chemical characters and character states not previously known or used in classification and (2) current ideas and hypotheses relating to phylogenetic relationships, as suggested by novel (cladistic) interpretations of the patterns of character state changes and also by recent molecular systematic studies. Southern Africa appears to be the region of origin of the two major subfamilies of Apiaceae (Saniculoideae and Apioideae), since practically all the basally divergent lineages are predominantly southern African.

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Can national occupancy patterns predict landscape-level invasion risk of an invasive species?

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Predicting the future range-expansion potential of invasive species is vital for decisions regarding the management of these species. Unfortunately, only coarse scale occurrence data is usually available, which in itself is confounded by several factors such as habitat suitability, propagule pressure and human influence. *Acacia longifolia* Wild was once (late seventies) regarded as the second most invasive plant in the Western Cape, prompting the release of a bud-galling wasp, *Trichilogaster acaciaelongifoliae* Froggatt (Hymenoptera: Pteromalidae), in 1982. The literature proclaims this case of weed-biological control as a text book example of successful control. However, until now, no study has measured *A. longifolia*'s current distribution and abundance in South Africa, roughly 25 years after the agent's release. Here, we make use of scale area curves to predict the current status of *A. longifolia* in South Africa, across several scales. The quarter degree grid occupancy of the weed was used to select approximately equal sized areas within the centre, range margins and climatically unsuitable areas within different zones of the national distribution. These areas were surveyed from a linear resolution of approximately 25 km to 2.5 m. Resulting scale area curves indicated greater occupancy in the core than edges in parts of the national range with continuous suitable habitat, while patterns were reversed when suitable areas were more fragmented. In addition, scale area curves suggest that the potential for *A. longifolia* to increase its distributional range is limited. The possibility that this pattern is due to highly effective biological control by *Trichilogaster acaciaelongifoliae* is discussed. We encourage future use of scale area curves to assess the landscape-invasion potential of invasive species.

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Gastrointestinal stability and absorption of natural products

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Most investigations (usually of a screening nature) on the biological properties of plant species, commonly used by traditional healers, are conducted on crude aqueous and solvent extracts. This approach, although important, ignores pharmacokinetic aspects which includes absorption and metabolism of potential active substances. Once ingested, plant material may interact with gastric enzymes and thereby become more potent. Alternatively, the gastric environment may degrade the active ingredient, resulting in partial or total loss of activity. The objective of this study was to expose selected traditional remedies to simulated gastric and intestinal conditions and to compare the antimicrobial activity to that of the same remedies not exposed to such conditions. In some cases (e.g. green tea) there was a loss in antimicrobial activity once exposed to simulated gastrointestinal conditions. The antimicrobial activity of 'buchu', however, was increased once exposed to simulated intestinal conditions. Efficacy is also determined by the rate and extent of absorption of the phytoingredient when orally administered or topically applied. Despite the historic and current use of rooibos tea and various claims made on the health properties of this indigenous beverage, no research has hitherto been conducted on the bioavailability of the molecules to which the health benefits are ascribed. Using the Caco-2 cell model, the intestinal transport of rooibos extracts and aspalathin (the major flavonoid in the tea) was investigated. The aspalathin transport from the rooibos extracts showed total movement of the dose across the human intestinal cells, while the aspalathin solutions exhibited pronouncedly lower transport values. The powerful antioxidant properties ascribed to rooibos tea has resulted in the cosmetic industries developing topical formulations for the prevention of skin disorders. This application prompted our investigation on the percutaneous transport of aspalathin using vertical Franz diffusion cells and